



# EPA Response to Hurricane Harvey

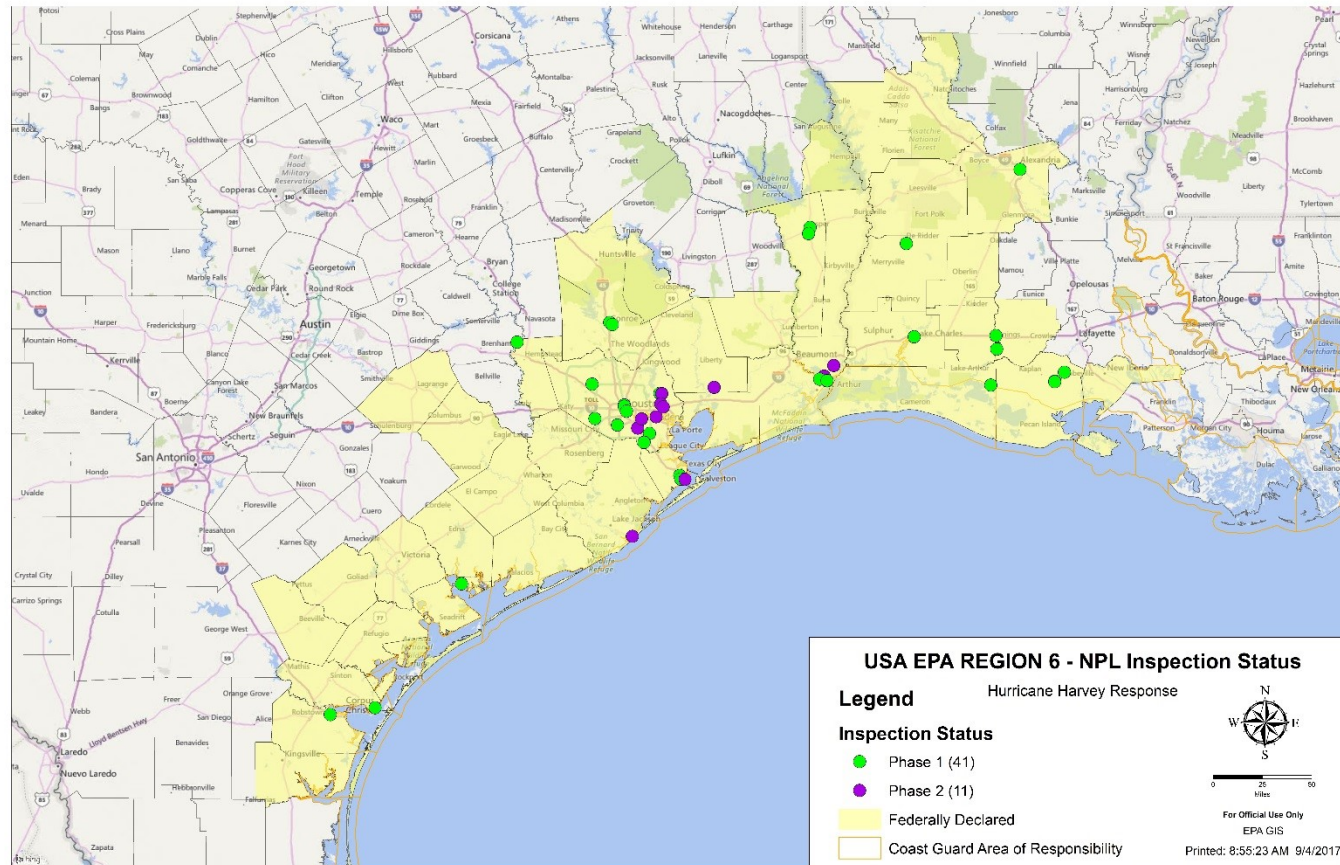
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SAMUEL COLEMAN, P.E.

ACTING REGIONAL ADMINISTRATOR

REGION VI

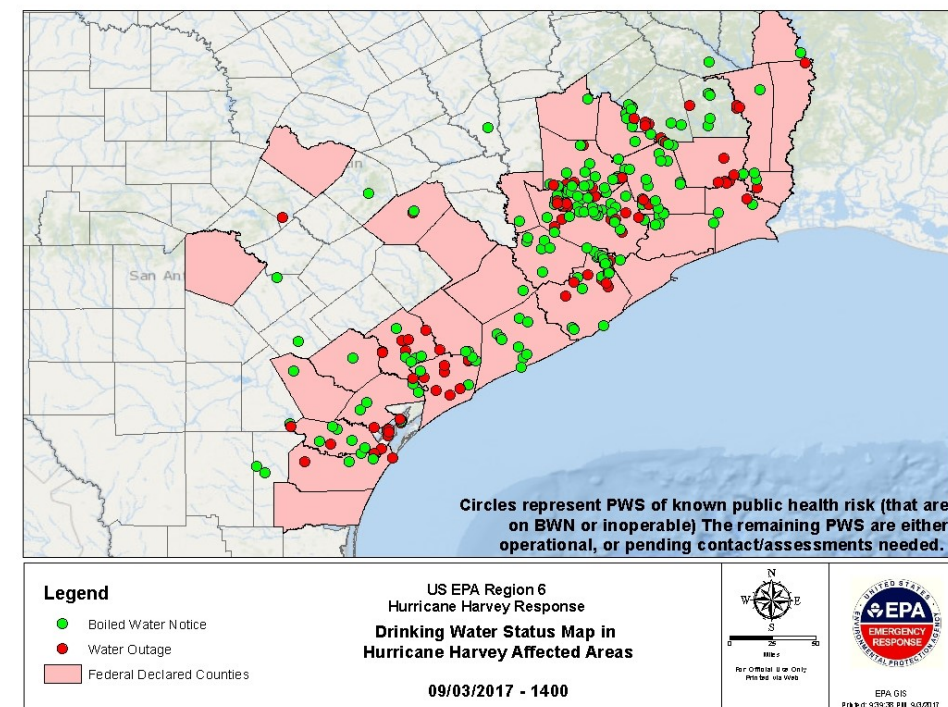
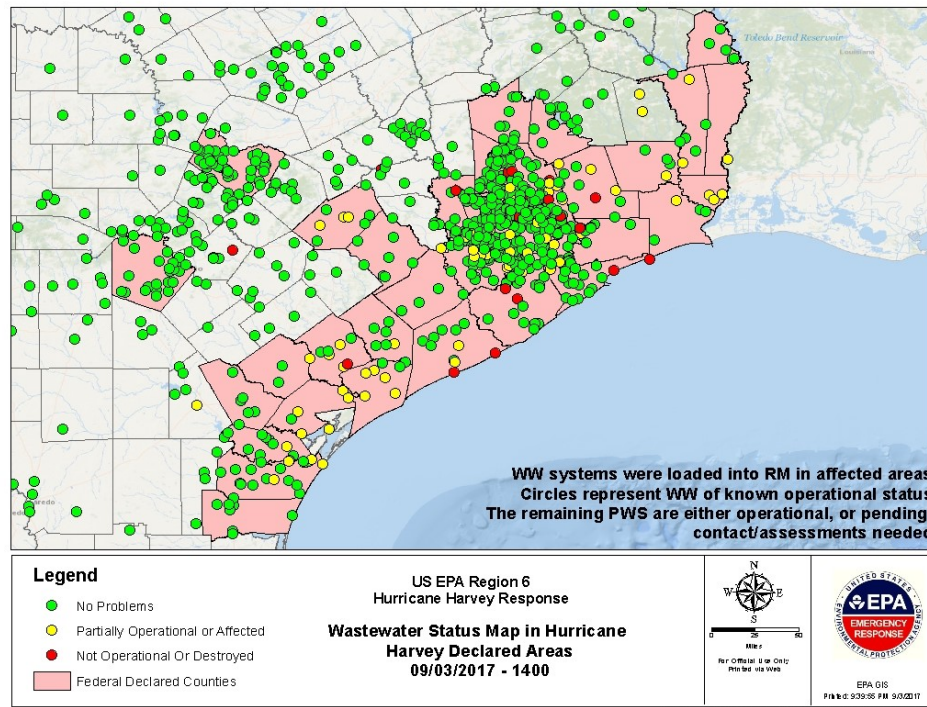
# NPL Site Inspections



## Status/Schedule for NPL Inspection

- Phase 1 – 41 Sites completed 09/01/2017
- Phase 2 – Eleven sites required inspection.
  - 5 sites scheduled for 9/04/2017
  - Remaining 6 sites scheduled for 09/05/2017

# DW/WW Systems in Partnership with TCEQ



- 10 EPA personnel assisting TCEQ in Austin working phone bank
- 12 EPA personnel on teams with TCEQ assessing systems and providing assistance to restore operations.

# Accomplishments To Date

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- Numerous hazard evaluations completed in Houston, Corpus Christi, and Port Arthur/Beaumont
  - Houston – two significant releases requiring follow up
  - Corpus Christi and Port Arthur/Beaumont – no significant releases
- Orphan container recovery underway
  - 113 containers/cylinders recovered
- Seven fuel waivers signed, 7<sup>th</sup> waiver covers 38 states
- Four No Action Assurance letters signed
- Daily Aerial over-flights for air monitoring
- Ground support air monitoring
- 43 Phase 1 NPL site inspections completed
- Accomplishments are achieved by full integration with TCEQ and TGLO in Unified Command



# Projected Work

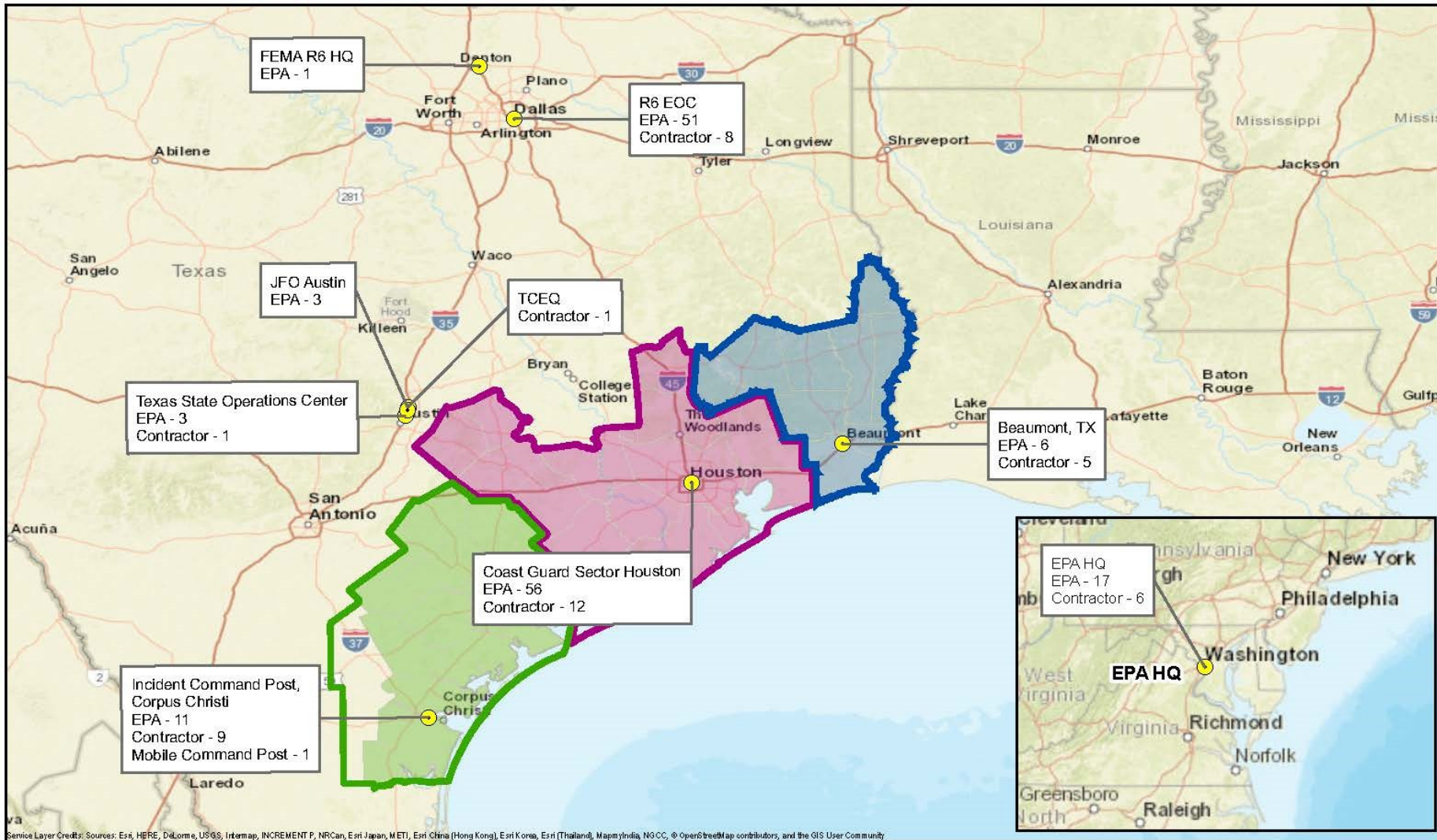
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- Mobile lab air monitoring in Port Arthur and Houston area this week
- Additional support to DW/WW teams
- Completion of Phase 2 NPL site inspections as soon as 9/11/17
- Private well testing
- Public outreach support for flood water hazards
- Container recovery
- Chemical and oil response as needed
- Debris – EPA involvement uncertain at this time
  - Can perform collection of HHW, E-Goods, and White Goods if tasked

# Arkema Response

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- EPA has provided 24-hour support to the incident.
- EPA role is to monitor environmental impacts of any releases
- Nearly constant aerial surveillance to monitor chemicals and heat imagery - no significant chemicals detected
- Ground air monitoring throughout incident – no significant chemicals detected.
- EPA working in Unified Command with Harris County Sheriff's Office, Harris County Fire Marshall's Office, Crosby Fire Department, TCEQ, and Arkema.
- Arkema responsible for post-incident site management, under TCEQ oversight.



# EPA Resources

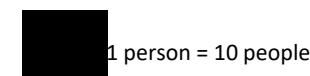
People supporting the Response as of 9/9/17



EPA: 150



Contractors: 70



1 person = 10 people

# EPA Assets



Portable High-Throughput Integrated Laboratory Identification System (PHILIS)



Trace Atmospheric Gas Analyzer (TAGA):  
EPA's Mobile Sampling and Analysis System



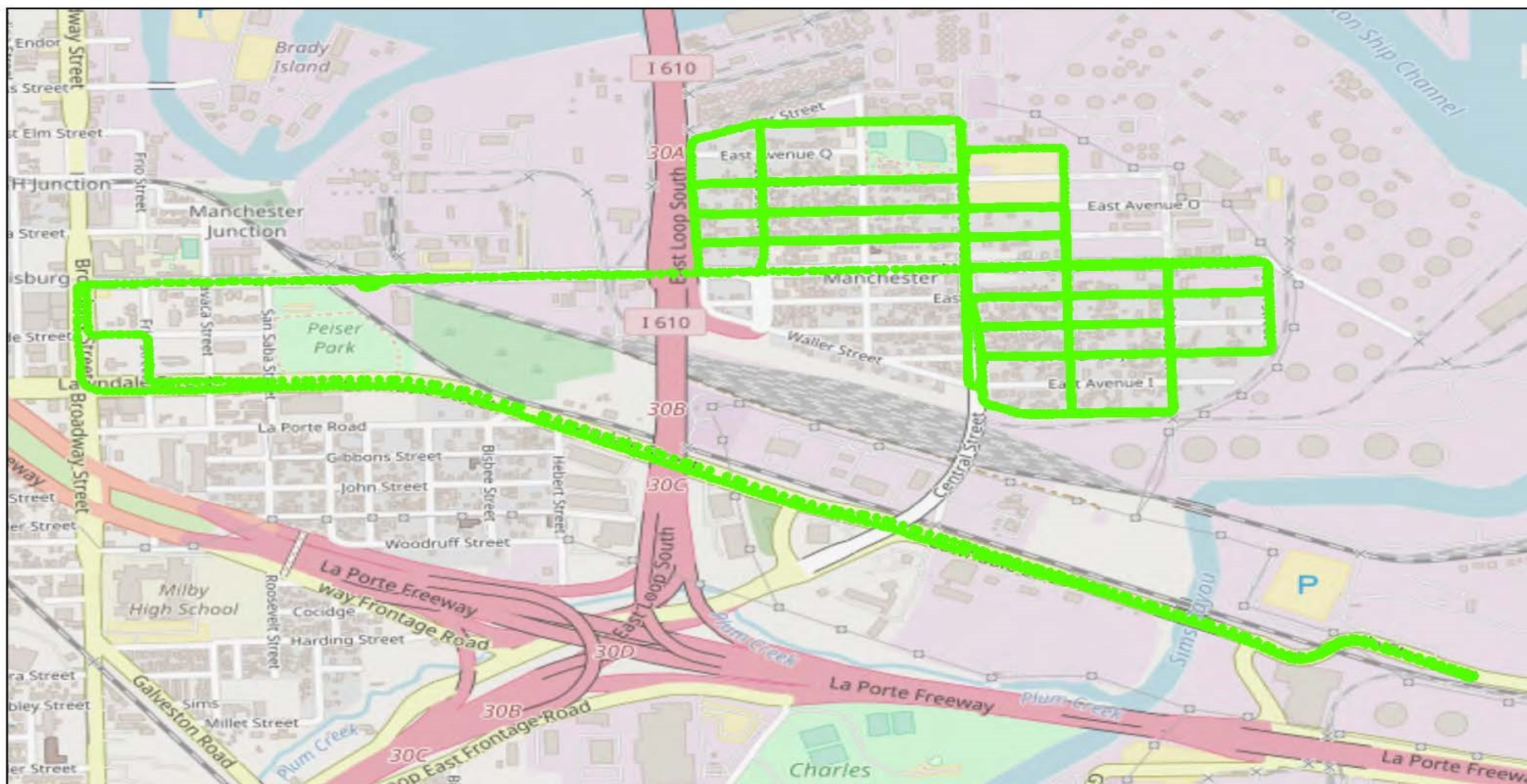
# TAGA Activities

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- Refinery monitoring
- Sensitive community monitoring
- Chemical manufacturing corridor monitoring



# TAGA product



Substance	CAS #	Short-term AMCV Health (ppb)
1,1-dichloroethylene	75-35-4	180
benzene	71-43-2	180
m/p-xylene	179601-23-1	1700
o-xylene	95-47-6	1700
tetrachloroethylene	127-18-4	1000
toluene	108-88-3	4000
trichloroethylene	79-01-6	100

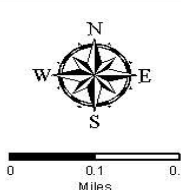
## Legend

- No Readings Above Benchmarks

### What's an AMCV?

AMCV is a collective term used to describe chemical-specific air concentrations used to evaluate air monitoring data that are set to protect human health and welfare. Short-term AMCVs are based on data concerning acute health effects. AMCVs may contain health-based Reference Values (RVs) and health- and welfare-based ESL values. AMCVs are screening levels used in TCEQ's evaluation of ambient air monitoring data to assess the potential for measured concentrations of specific chemicals to cause health or welfare effects. Health-based AMCVs are safe levels at which exposure is unlikely to result in adverse health effects. ESLs are screening levels used in the TCEQ's air permitting process to establish maximum emission rates that are written into enforceable air permits. Health-based ESLs are set 70 percent lower than the safe level, or AMCV. This additional buffer allows TCEQ to take into account exposure to chemicals from multiple sources in air permit reviews.

## USA EPA REGION 6 TAGA Runs on 20170905



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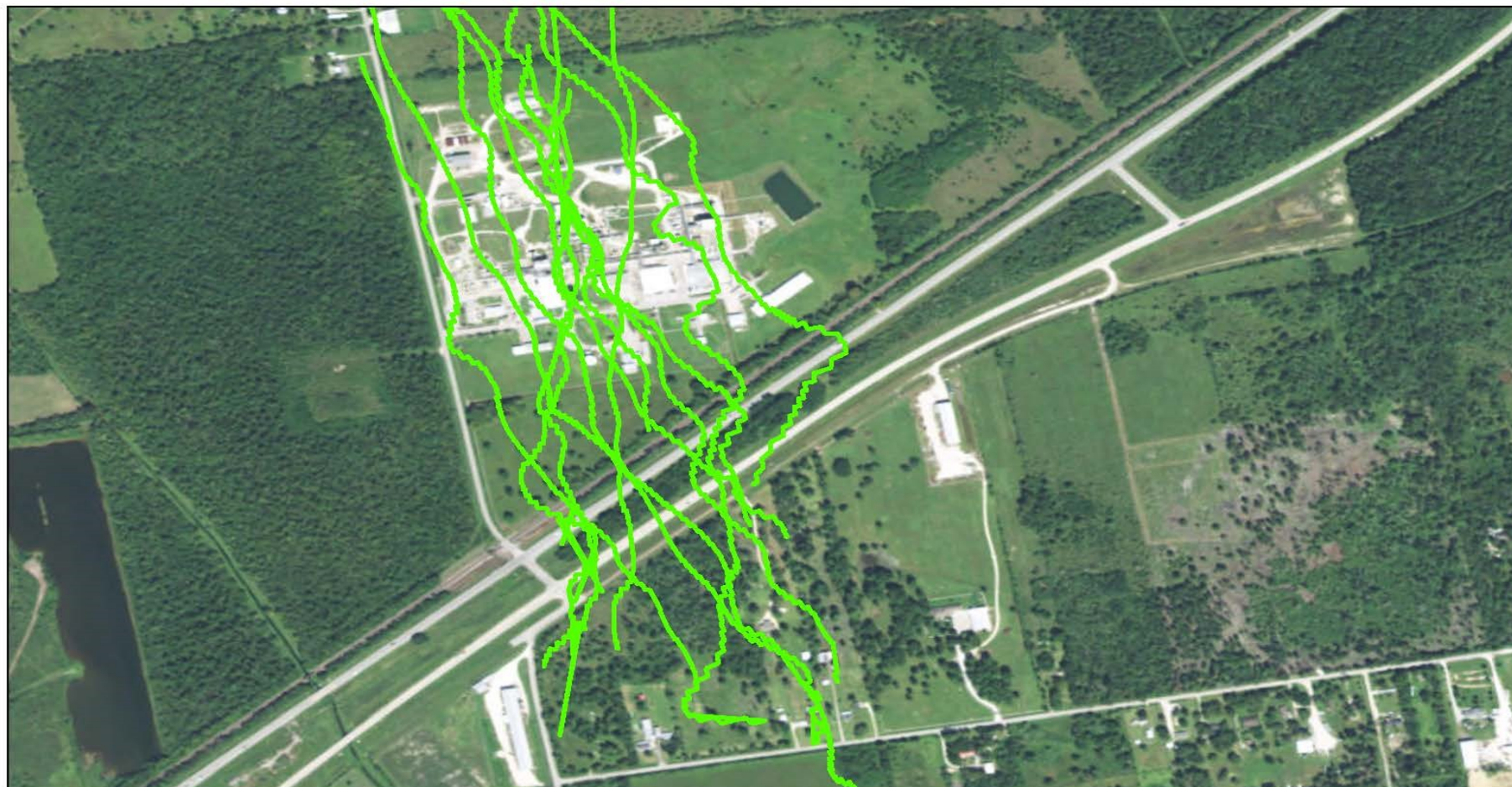
# ASPECT Activities

- DHS and DOE requested monitoring of
  - Pipelines
  - Refineries
- Release assessment of chemical and oil storage facilities
- Release response support at the Arkema incident
- Aerial reconnaissance imagery





# ASPECT flights




Chemical Compounds	Short-term AMCV (ppm)
1,1-dichloroethane	1.0
1-butene	27
acetone	11
dichlorodifluoromethane	10
ethyl acetate	4
ethylene	500
isobutane	33
methyl ethyl ketone	20
methylene chloride	3.4
n-butyl acetate	7.4
n-propyl acetate	2
propylene	Sample Asphyxiant
vinyl chloride	27

**Legend**

— No Readings Above Benchmarks


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**USA EPA REGION 6  
Flight 13 ASPECT**



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Miles

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2017 Hurricane Harvey Deployment  
Arkema Site and Rapid Needs Assessment Chemical Detections  
9/7/2017 6:06:38 PM



Date	Flight #	Primary Mission	Compound	Limit of Detection (ppm)	Detections*
8/29	1	Systems Check			
8/30	2	Arkema Site	No Detections		
8/31	3	Arkema Site	No Detections		
8/31	4	Arkema Site	Peroxide* (Arkema)	5.3	Trace (6.3*)
8/31	5	Arkema Site	Peroxide* (Arkema)	5.3	Trace (6.3*)
9/1	6	Arkema Site	No Detections		
9/1	7	Arkema Site & Zone 5 RNA	Peroxide* (Arkema)	5.3	Trace (6.3*), multiple passes
9/1	8	Arkema Site (Fires)	Peroxide* (Arkema)	5.3	Trace (6.3*), multiple passes
9/2	9	Arkema Site & Zones 5 & 6 RNA	No Detections		
9/2	10	Arkema Site & Zone 6 RNA	Peroxide* (Arkema)	5.3	Trace (6.3*), multiple passes
9/2	11	Arkema Site	Peroxide* (Arkema)	5.3	Trace (6.3*)
9/3	12	Arkema Site Zone 6 & 7 RNA	Arkema: Peroxide Zone 6: 1-butene	5.3 12.0	Trace (6.3*) Trace (13*)
9/3	13	Arkema Site	Peroxide	5.3	7.7 ppm (max)
9/4	14	Zone 7 RNA	No Detections		
9/4	15	Zone 4 RNA	1-butene	12.0	Trace (13*)
9/5	16	Zone 4 RNA	No Detections		
9/5	17	Zone 4 RNA	No Detections		
9/6	18	Zone 10 RNA	No Detections		
9/6	19	Zone 8 RNA	1-butene	12.0	Trace (13*)

\* "Trace" detection represents a value slightly above (about 1 ppm) the limit of detection. Peroxide measurements are being reported as requested by the Environmental Unit. These measurements are associated with the Arkema site and were obtained before, during, and after the trailers burned.

ASPECT  
flights

# PHILIS Activities

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- Release assessment of analytical services
- Staging area sampling services
- Superfund site assessment analytical services



# Effective Site Clean-up

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- EPA integrates and leverages authorities to maximize effective clean-up of sites.
- EPA and TCEQ partner to solve problems that are bigger than individual EPA or TCEQ authorities.
- TCEQ conducted the Harvey impact inspection of the Geneva Superfund site (one of the 42 in the affected area) because it was passed to Texas for Operation and Maintenance after EPA cleanup.
- EPA conducted an initial cleanup at the CES Environmental Services site (a chemical blending site in the middle of a residential community) and then passed the site to TCEQ's voluntary cleanup program for long term remediation.